

INCH-POUND

FED-STD-H28/18C
1 November 2019
SUPERSEDING
FED-STD-H28/18B
20 August 1991

FEDERAL STANDARD
SCREW-THREAD STANDARDS FOR FEDERAL SERVICES
SECTION 18
PHOTOGRAPHIC EQUIPMENT THREADS

This standard was approved by the Commissioner,
Federal Supply Service, General Services Administration, for the
use of all Federal Agencies.

AMSC N/A

FSC THDS

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INFORMATION SHEET ON FEDERAL STANDARDS

This Federal Standard is issued in loose-leaf form to permit the insertion or removal of new or revised pages and sections.

All users of Federal Standards should keep them up to date by inserting revised or new pages as issued and removing superseded or cancelled pages.

New and revised pages will be issued under Change Notices which will be numbered consecutively and will bear the date of issuance. Change Notices should be retained and filed in front of the standard until such time as they are superseded by a reissue of the entire standard.

FOREWARD

This section was developed in order to provide photographic equipment thread data for the Federal Services.

FED-STD-H28/18A was prepared by the Defense Industrial Supply Center (DLA-IS) with the following significant changes from the previous issues: (1) connection details were replaced by references to controlling standards; (2) threads for attaching mounted lenses, which originally appeared in the withdrawn American National Standard ANSI PH3.10-1954 were removed; (3) attachment thread sizes for lens accessories, which originally appeared in the superseded American National Standard ANSI PH3.12-1953, were revised to agree with ANSI PH3.103-1983; (4) tapered threads for shutter cable release tip/socket, which originally appeared in the superseded American National Standard PH3.23-1950 were revised to agree with ANSI PH3.107-1983 (ANSI/ISO 6053-1979); (5) straight threads for shutter cable release tip/socket, which originally appeared in the withdrawn American National Standard PH3.24-1950 were removed; (6) added lens mount thread data for 16mm and 8mm motion picture cameras.

FED-STD-H28/18B is an updated version of FED-STD-H18/28A. Significant changes include the following: (1) inclusion of four additional lens accessory attachment sizes from the 1987 edition of the International Standard ISO 1948; (2) removal of the mating external thread tolerance 6g from the body of the standard thread table to a table footnote; (3) redesignation of document PH22.76 to the Society of Motion Picture and Television replacement, ANSI/SMPTE 76.

FED-STD-H28/18C is an updated version of FED-STD-H28/18B. Significant changes include the following: (1) replacement of the withdrawn American National Standard ANSI PH3.102 with ISO 1222: 2010.

SECTION 18 – PHOTOGRAPHIC EQUIPMENT THREADS

1. Scope and Classification. This section describes the screw threads commonly used on photographic equipment in order to promote interchangeable connections.

2. Applicable documents.

2.1 Government publications. The issues of the following publications in effect on the date of invitation for bids or requests for proposal form a part of this standard to the extent specified herein.

Federal Standards

- FED-STD-H28/1 – Nomenclature, Definitions and Letter Symbols for Screw Threads
- FED-STD-H28/2 – Unified Inch Screw Threads – UN and UNR Thread Forms
- FED-STD-H28/20 – Inspection Methods for Acceptability of UN, UNR, UNF, M and MJ Screw Threads
- FED-STD-H28/21 – Metric Screw Threads

(Copies of these documents are available online at <https://quicksearch.dla.mil/>)

2.2 Other publications. The following documents form a part of this standard to the extent specified herein. Unless a specific issue is identified, the issue in effect on the date invitation for bids or requests for proposal form a part of this standard to the extent specified herein.

American National Standards Institute (ANSI)

- ANSI PH3.101 – Photography (cameras) – Tripod connections for American cameras (1/4-inch-20 thread)
- ANSI PH3.102 – Photography (cameras) – Tripod connections for heavy duty or imported cameras (3/8-inch-16 thread with adapter for 1/4-inch-20 tripod screws)
- ANSI PH3.103 – Photography (cameras) – Lens barrel attachment threads for lens Accessories
- ANSI PH3.107 – Photography (cameras) – Shutter cable release and socket dimensions
- ANSI/SMPTE 76 – Motion picture cameras – threaded lens mounts – 16mm and 8mm cameras

(Copies of these documents are available from <https://www.ansi.org/>)

International Organization for Standards (ISO)

- ISO 1222 – Photography – Tripod connections

(Copies of these documents are available from <https://www.iso.org/>)

3. Requirements.

3.1 Standard threads. Standard threads for photographic equipment are listed in Table XVIII.1.

3.2 Screw thread acceptability. Inspection methods for acceptability shall be in accordance with FED-STD-H28/20. The required gaging system shall be specified in the accordance with that document. 1/

4. Quality Assurance Provisions.

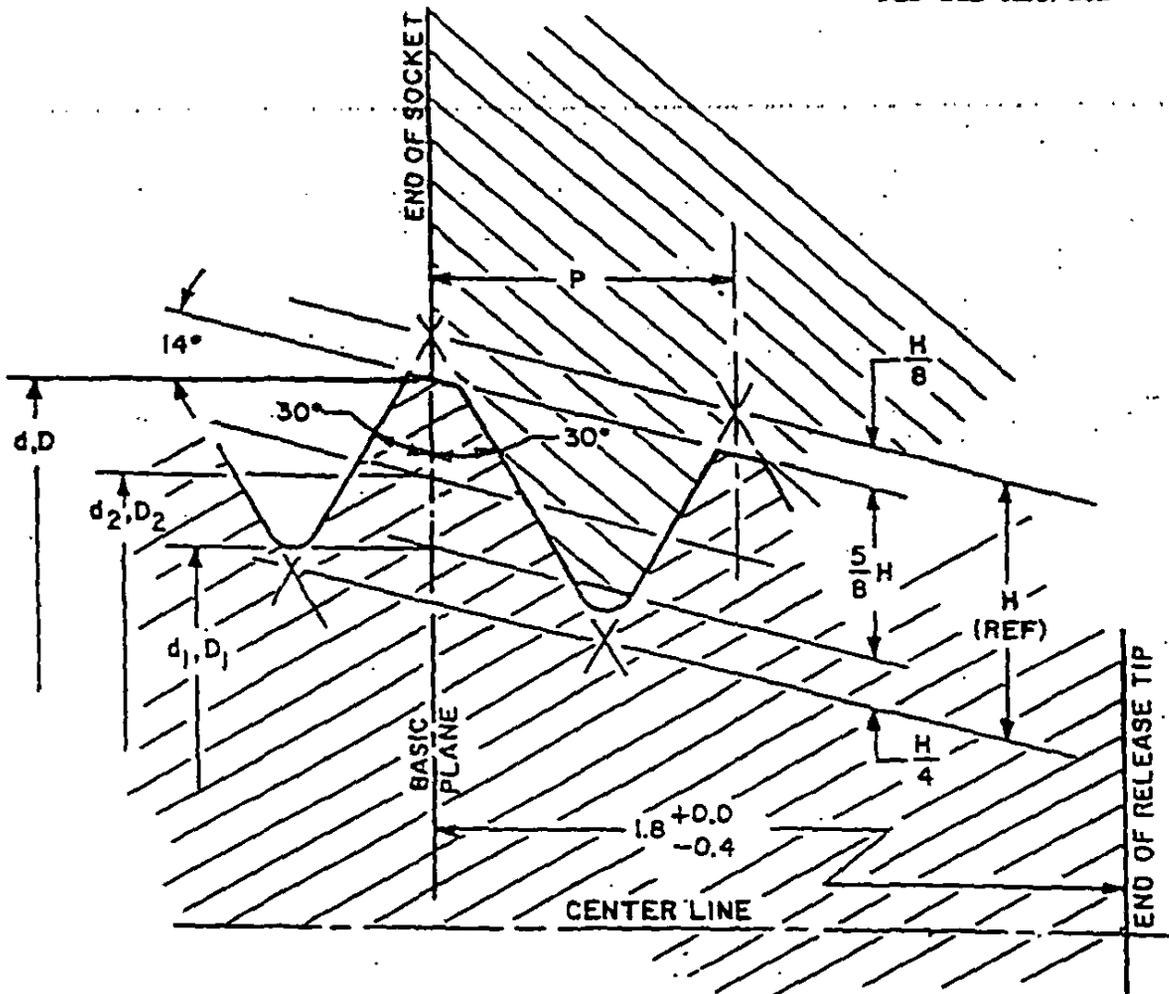
5. Packaging.

6. Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensive changes.

1/ Gaging systems are defined in ANSI/ASME B1.3M which is incorporated in FED-STD-H28/20.

<u>Connection</u>	<u>Standard Threads</u>	<u>Controlling Thread Standards</u>	<u>Controlling Connection Standards</u>
Tripod Connections	.250-20UNC-1A/1B <u>1/</u>	FED-STD-H28/2 <u>2/</u>	ANSI PH3.101
	.266-20UNC-1B <u>3/</u>	FED-STD-H28/2 <u>2/</u>	ANSI PH3.101
	.375-16UNC-1A/1B <u>4/</u>	FED-STD-H28/2 <u>2/</u>	ANSI PH3.102
Lens Accessory <u>7/</u> Attachments			
	M13.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M16.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M19.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M22.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M25.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M30.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M35.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M40.5x0.5-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M43x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M46x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M49x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M53x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M55x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M58x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M62x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M67x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M72x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M77x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M82x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M86x1.0-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M95x1.0-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	ANSI PH3.103 <u>8/</u>
	M60x0.75-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	<u>8/</u>
	M100x1.0-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	<u>8/</u>
	M112x1.0-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	<u>8/</u>
	M122x1.0-6H <u>5/</u>	FED-STD-H28/21 <u>6/</u>	<u>8/</u>
Shutter cable, Release Tip/Socket, Tapered Thread Connections	Special See Figure 18.1	ANSI PH3.107	ANSI PH3.107
Shutter cable, Release Tip/Socket Straight Thread Connections	M3.4x0.5-6H	FED-STD-H28.21 <u>6/</u>	ANSI PH3.107
Lens Mounts for Motion Picture Cameras	1-32UN-2A (for 16mm) .635-UN (for 8mm)	FED-STD-H28/2 <u>2/</u> FED-STD-H28/2 <u>2/</u>	ANSI-SMPTE 76 ANSI-SMPTE 76
NOTES: See next page			

- 1/ In ISO 1222-1987, an allowance of 0.0043 is applied to pitch and major diameters of the internal thread.
- 2/ The equivalent industry standard for unified screw threads is ASME B1.1. This standard is incorporated in FED-STD-H28/2.
- 3/ Non-standard socket thread used to accommodate an oversize tripod screw thread,
- 4/ In ISO1222-1987, an allowance of 0.0059 inch is applied to pitch and major diameters of the internal thread.
- 5/ In ANSI PH3.103, tolerance class is indicated as inch standard class 2.
- 6/ The equivalent industry standard for metric M profile screw threads is ANSI.ASME B1.13M. This standard is incorporated into FED-STD-H28/21.
- 7/ Lens accessory attachments specified in the Controlling Connections Standards column are internally threaded. The mating external threads for lenses accessories may be manufactured to tolerance class 6g prior to plating or coating. Plated or coated threads must not exceed the basic profile (tolerance position h) at maximum material position.
- 8/ Sizes are included in ISO 1948:1987.



BASIC PLANE DIMENSIONS

MAJOR DIAMETER d, D = 3.400
 PITCH DIAMETER d_2, D_2 = 3.082
 MINOR DIAMETER d_1, D_1 = 2.870

THREAD FORM DIMENSIONS

PITCH = 0.5
 FUNDAMENTAL TRIANGLE HEIGHT, H = 0.424
 TRUNCATION AT MAJOR DIAMETER, $\frac{H}{8}$ = 0.053
 TRUNCATION AT MINOR DIAMETER, $\frac{H}{4}$ = 0.106
 THREAD HEIGHT, $\frac{5H}{8}$ = 0.265

FIGURE 18.1 THREADS FOR SHUTTER CABLE RELEASE TIP (EXTERNAL TAPER THREAD) AND SOCKET (INTERNAL TAPER THREAD)

NOTE: All dimensions are in millimeters unless indicated otherwise.

MILITARY INTERESTS:

Custodians:

Army – AR
Navy – AS

Review Activities:

Army –MI
DLA – GS

Preparing Activity:

DLA – IS
Project No: THDS-2019-002

NOTE: The activities listed above were interested in this document as of the date of this Document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil/>